



Nebraska Arbovirus Surveillance Report for July 12- July 25, 2015

CDC Weeks 28/29

(All data are preliminary and may change as more data is received)

State Summary:

Protocol: Historically the Nebraska Public Health Lab (NPHL) has tested Culex mosquitoes for West Nile Virus (WNV) using a reverse transcriptase PCR (RT-PCR) assay. Starting this season NPHL will test Culex mosquitoes for St. Louis Encephalitis Virus (SLE) and Western Equine Encephalitis Virus (WEE) in addition to WNV using a multiplex PCR assay.

Remarks: As of this report 27 of the 28 counties participating in WNV mosquito surveillance have submitted mosquito samples for testing over the two week period covered in this report. For the biweekly period a total of 485 pools consisting of 17,337 Culex mosquitoes were submitted for testing. As of this report 485 of the 485 pools had been tested. Of the 485 pools currently tested for the biweekly period, **17 positive pools** have been detected. All data are preliminary and surveillance results are subject to change. Currently no positive pools for SLE and WEE viruses have been detected as of this report. The report only covers the mosquito data for the most recent weeks that complete data is available. As such, more positive pools may be reported out that are not covered in this report. For the most up-to-date numbers on mosquito positive pools visit the Nebraska Department of Health and Human Services West Nile Virus website at: <http://dhhs.ne.gov/wnv>.

The below tables summarize the tested pools for the biweekly periods. Minimum infection rate (MIR) reported per 1,000 Culex and vector index (VI) are two tools that can be used in assessing the WNV transmission risk. Minimum infection rate is calculated by taking the number of positive pools detected and dividing it by the total number of Culex mosquitoes collected. This proportion is then multiplied by 1,000 to get the MIR per 1,000 Culex mosquitoes. Vector index is calculated by taking the MIR as a proportion and multiplying it by the average number of Culex per trap night collected. Generally, the higher the values for MIR and VI, the greater the potential risk for WNV transmission.

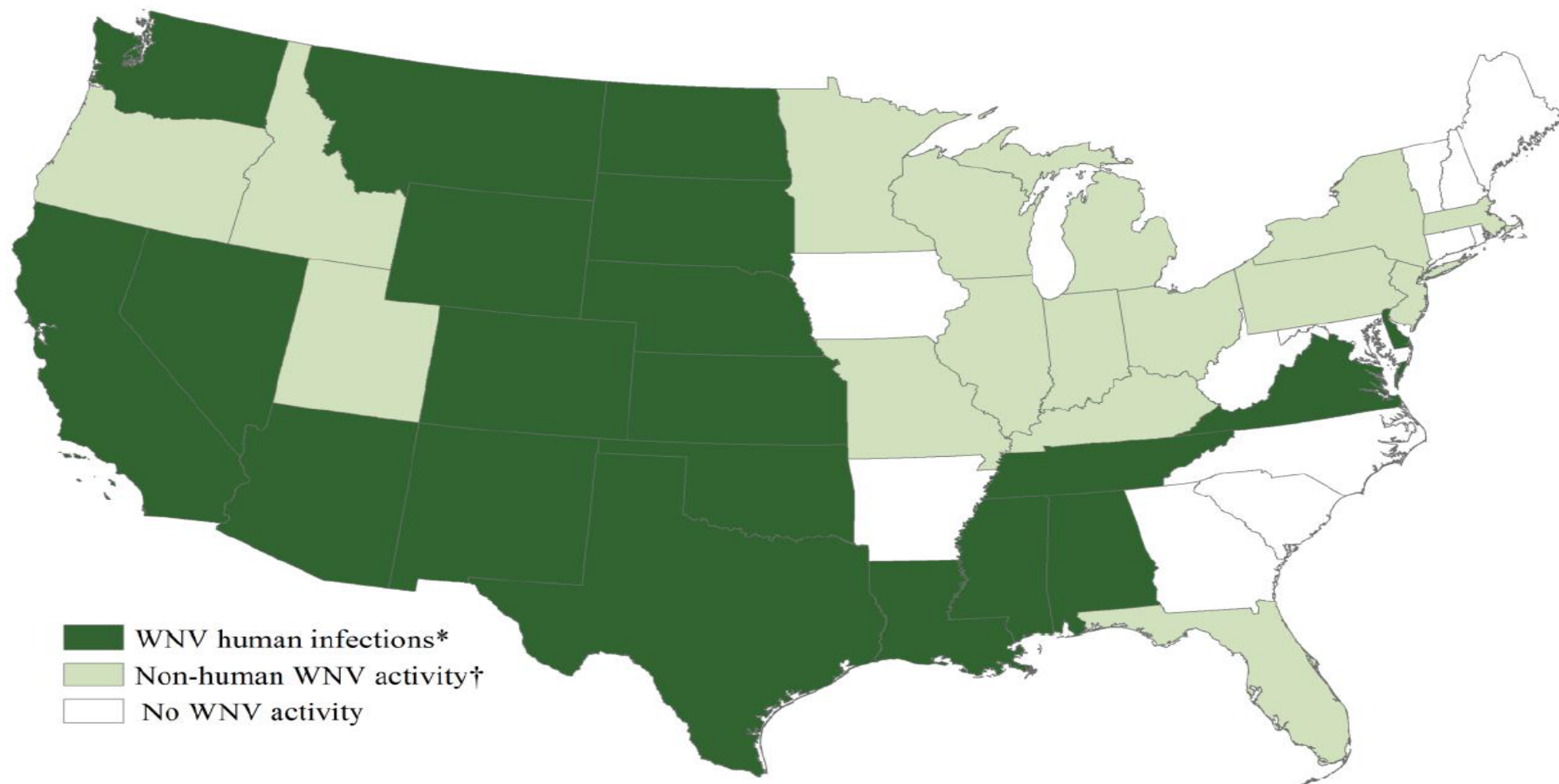
However, it is important to note that there are many factors that also come into play in determining an individual person's risk of acquiring WNV and that MIR and VI are not definitive tools. They are implements that we can use to try and determine high WNV activity and potentially greater risk of WNV infection. **Low WNV activity or no WNV positives detected DOES NOT mean NO RISK!** Anytime mosquitoes are active there is always the possibility of acquiring WNV or another mosquito-borne arbovirus and proper mosquito prevention methods should be utilized.

As of August 3, 2015 **six positive human** WNV clinical case has been identified. One each from the Central District Health Department, East Central District Health Department, Douglas County Health Department, Lincoln-Lancaster Health Department, Loup Basin Health Department, and Southwest Health Department. **Five blood donors** have also been identified at this time. Two from Sarpy/Cass Health Department and one each from East Central, Two Rivers, and Southwest health departments. There have been no birds to test positive for WNV and no equine WNV cases to report.

WEST NILE VIRUS SURVEILLANCE

West Nile Virus in the U.S.

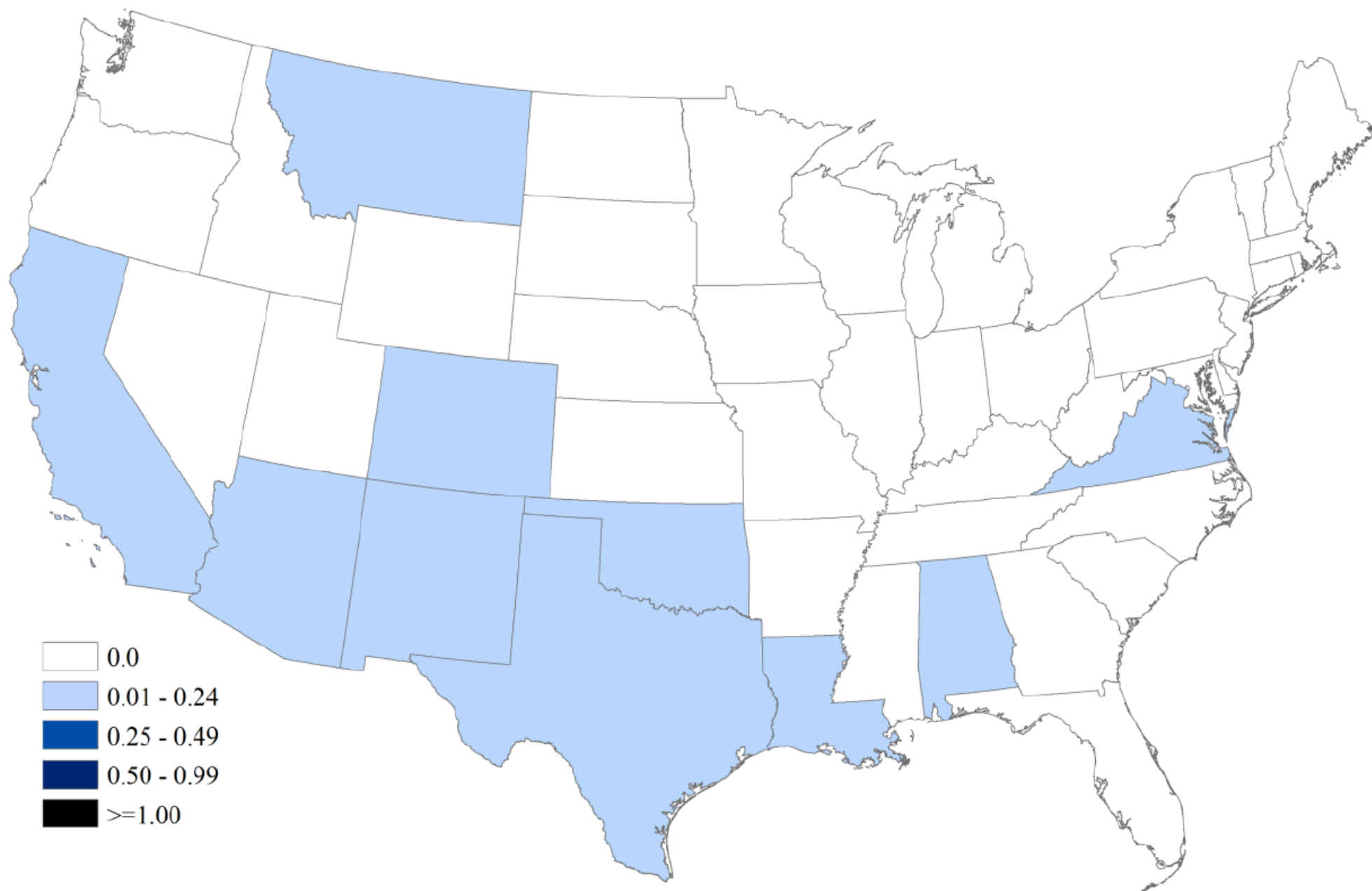
Figure 1. West Nile virus (WNV) activity reported to ArboNET, by state — United States, 2015 (as of July 28, 2015)



*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

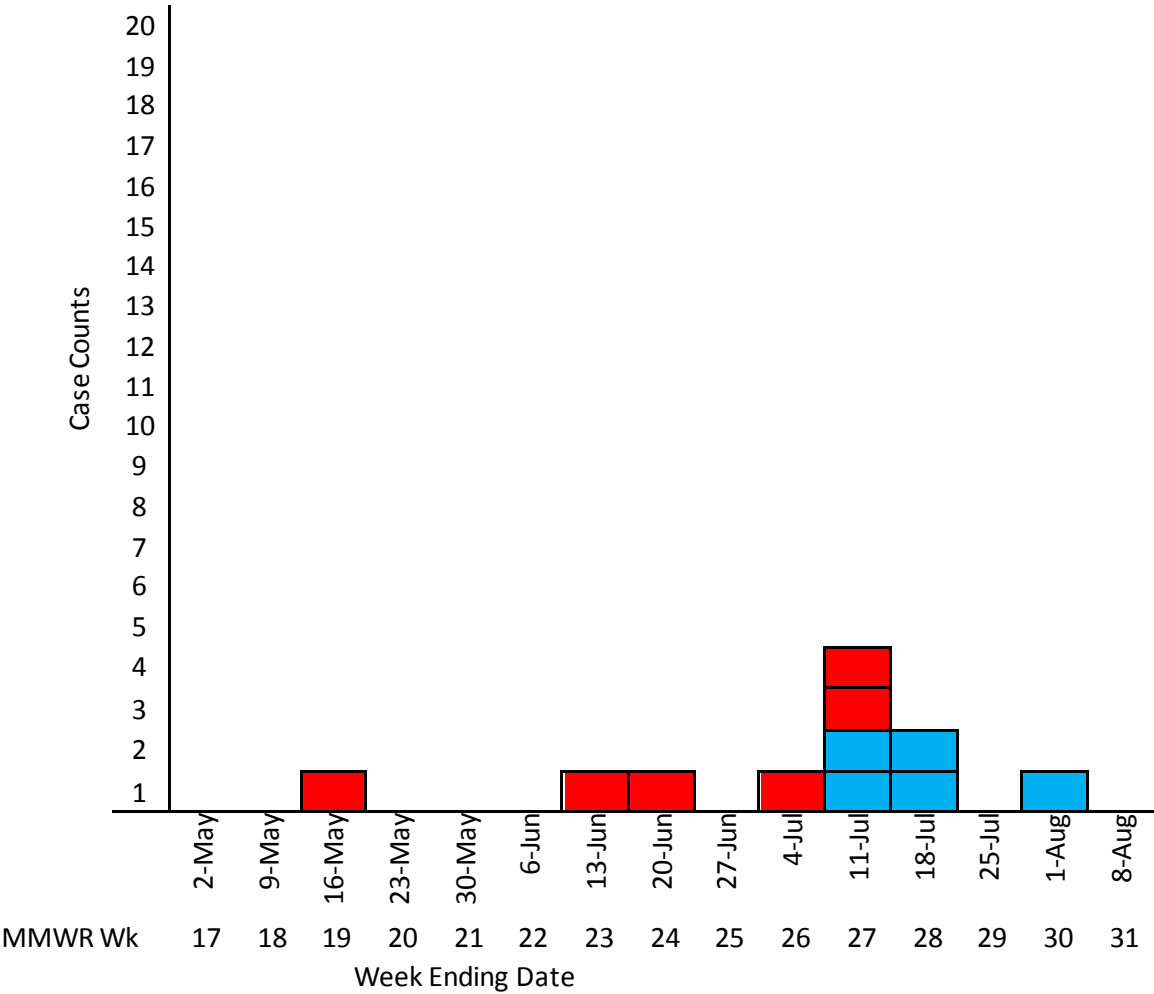
†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

Figure 3. West Nile virus (WNV) neuroinvasive disease incidence reported to ArboNET, by state — United States, 2015 (as of July 28, 2015)

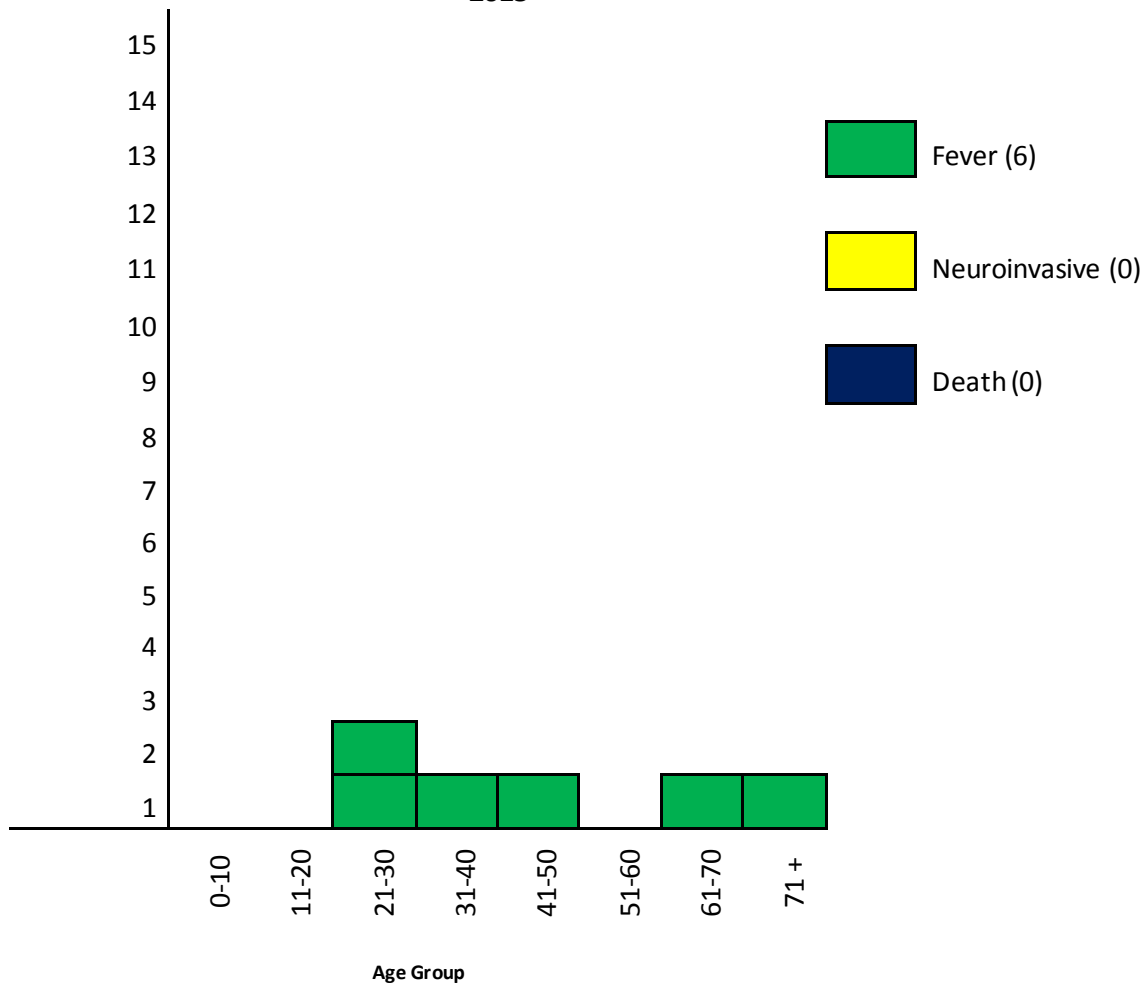


Nebraska Human WNV Cases as of August 3, 2015

West Nile Virus clinical cases (Red), n= 6 and blood donors (Blue), n= 5 by week of illness onset, 2015



West Nile Virus clinical cases, by age group,
2015



Biweekly Nebraska County WNV Mosquito Test Results Table CDC Weeks 28/29

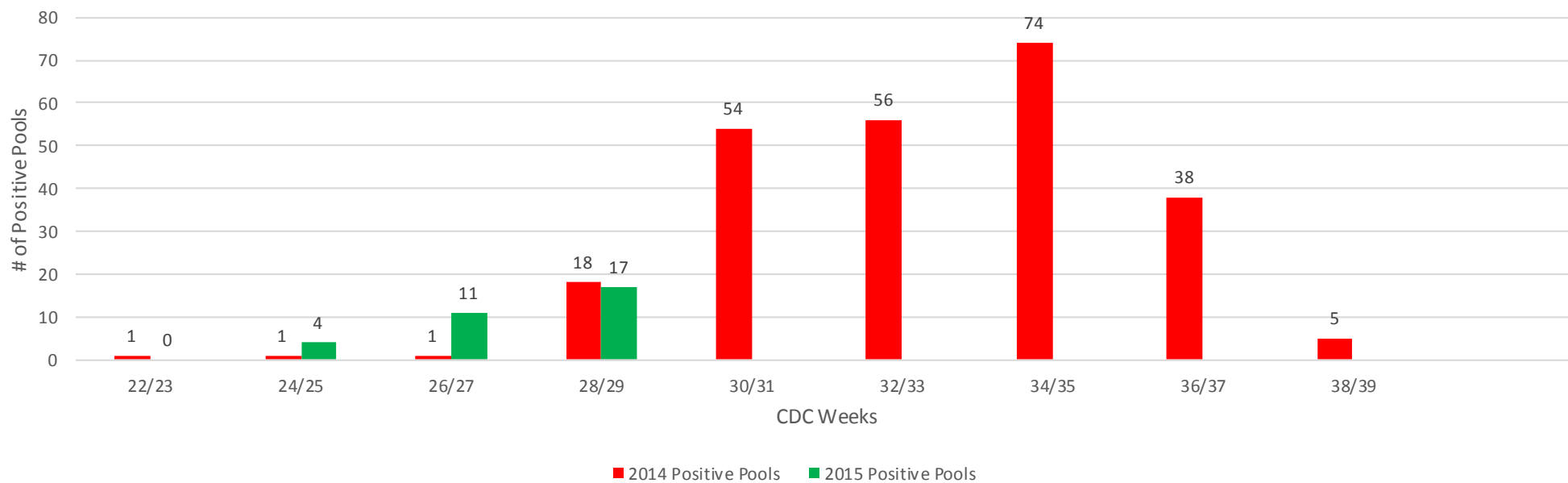
County	Trap Week	WNV Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	Weekly VI	% Pos. Pools
Buffalo	28/29	0	6	6	4	4.8	0.0	0.000	0.0
Butler	28/29	0	2	2	1	3.0	0.0	0.000	0.0
Chase	28/29	0	5	5	5	30.4	0.0	0.000	0.0
Cherry	28/29	2	35	35	6	268.0	1.2	0.333	5.7
Dawes	28/29	2	99	99	6	779.0	0.4	0.333	1.8
Dawson	28/29	0	14	14	6	79.3	0.0	0.000	0.0
Dixon	28/29	0	5	5	3	6.7	0.0	0.000	0.0
Dodge	28/29	1	12	12	6	35.7	4.7	0.167	8.3
Douglas	28/29	0	5	5	5	8.6	0.0	0.000	0.0
Garden	28/29	0	35	35	6	248.7	0.0	0.000	0.0
Garfield	28/29	1	14	14	12	5.8	14.5	0.083	7.1
Hall	28/29	1	7	7	6	10.7	15.6	0.167	14.3
Holt	28/29	ND	ND	ND	ND	ND	ND	ND	ND
Jefferson	28/29	0	13	13	6	19.3	0.0	0.000	0.0
Lancaster	28/29	0	8	8	6	17.8	0.0	0.000	0.0
Lincoln	28/29	3	18	18	6	103.2	4.8	0.500	16.7
Madison	28/29	0	11	11	6	29.5	0.0	0.000	0.0
Phelps	28/29	0	6	6	6	3.5	0.0	0.000	0.0
Platte	28/29	1	11	11	5	29.4	6.8	0.200	9.1
Polk	28/29	0	1	1	1	3.0	0.0	0.000	0.0
Red Willow	28/29	0	4	4	6	5.5	0.0	0.000	0.0
Richardson	28/29	0	24	24	6	120.3	0.0	0.000	0.0
Scottsbluff	28/29	0	52	52	6	413.8	0.0	0.000	0.0
Seward	28/29	0	2	2	1	4.0	0.0	0.000	0.0
Sheridan	28/29	6	83	83	6	466.7	1.5	1.000	7.2
Wayne	28/29	0	5	5	3	4.7	0.0	0.000	0.0
Webster	28/29	0	6	6	6	2.0	0.0	0.000	0.0
York	28/29	0	2	2	1	7.0	0.0	0.000	0.0
<i>2015 Biweekly Total</i>	<i>28/29</i>	<i>17</i>	<i>485</i>	<i>485</i>	<i>137</i>	<i>126.6</i>	<i>1.0</i>	<i>0.124</i>	<i>3.5</i>
<i>2014 Biweekly Total</i>	<i>28/29</i>	<i>18</i>	<i>386</i>	<i>386</i>	<i>130</i>	<i>92.3</i>	<i>1.5</i>	<i>0.138</i>	<i>4.7</i>

Bold Face= Indicates pools remain to be tested from these counties. **ND=** No Data from current biweekly sampling period. **Pools Submitted** column is the number of pools submitted for testing from that county and the **Pools Tested** column is the current number of pools that have been tested of the pools submitted.

Cumulative 2015 Nebraska County WNV Mosquito Test Results

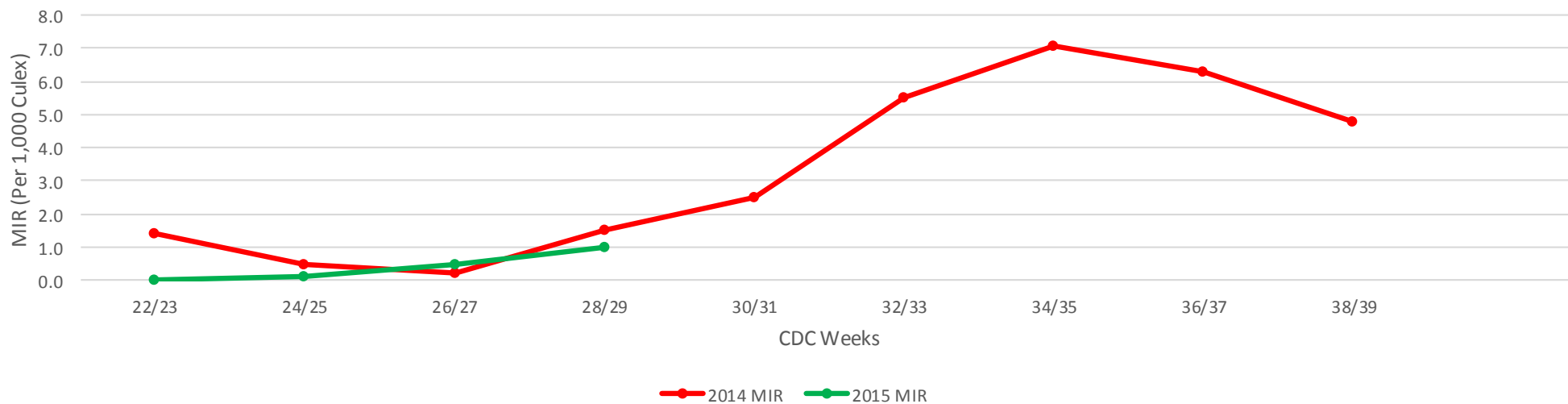
County	WNV Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	VI	% Pos. Pools
Buffalo	0	94	94	22	163.6	0.0	0.000	0.0
Butler	1	27	27	4	255.0	1.0	0.250	3.7
Chase	0	47	47	21	69.9	0.0	0.000	0.0
Cherry	2	147	147	24	274.5	0.3	0.083	1.4
Dawes	7	392	392	24	742.6	0.4	0.292	1.8
Dawson	0	52	52	24	70.3	0.0	0.000	0.0
Dixon	0	20	20	12	12.4	0.0	0.000	0.0
Dodge	1	41	41	24	29.2	1.4	0.042	2.4
Douglas	0	39	39	23	21.9	0.0	0.000	0.0
Garden	1	88	88	24	136.1	0.3	0.042	1.1
Garfield	1	48	48	30	30.6	1.1	0.033	2.1
Hall	1	59	59	23	69.1	0.6	0.043	1.7
Holt	0	70	70	18	152.1	0.0	0.000	0.0
Jefferson	0	64	64	24	53.9	0.0	0.000	0.0
Lancaster	0	80	80	24	105.4	0.0	0.000	0.0
Lincoln	5	83	83	24	135.0	1.5	0.208	6.0
Madison	0	39	39	24	30.6	0.0	0.000	0.0
Phelps	0	33	33	24	21.4	0.0	0.000	0.0
Platte	2	91	91	20	175.9	0.6	0.100	2.2
Polk	0	13	13	4	95.5	0.0	0.000	0.0
Red Willow	0	43	43	23	56.8	0.0	0.000	0.0
Richardson	1	88	88	24	109.0	0.4	0.042	1.1
Scottsbluff	1	200	200	24	376.1	0.1	0.042	0.5
Seward	0	13	13	4	83.3	0.0	0.000	0.0
Sheridan	8	240	240	24	466.7	0.7	0.333	3.3
Wayne	0	21	21	12	21.3	0.0	0.000	0.0
Webster	1	61	61	23	81.0	0.5	0.043	1.6
York	0	14	14	4	100.0	0.0	0.000	0.0
2015 Cumulative State Wide Total	32	2207	2207	555	146.4	0.4	0.058	1.4

2014 and 2015 Biweekly WNV Positive Pools Comparison

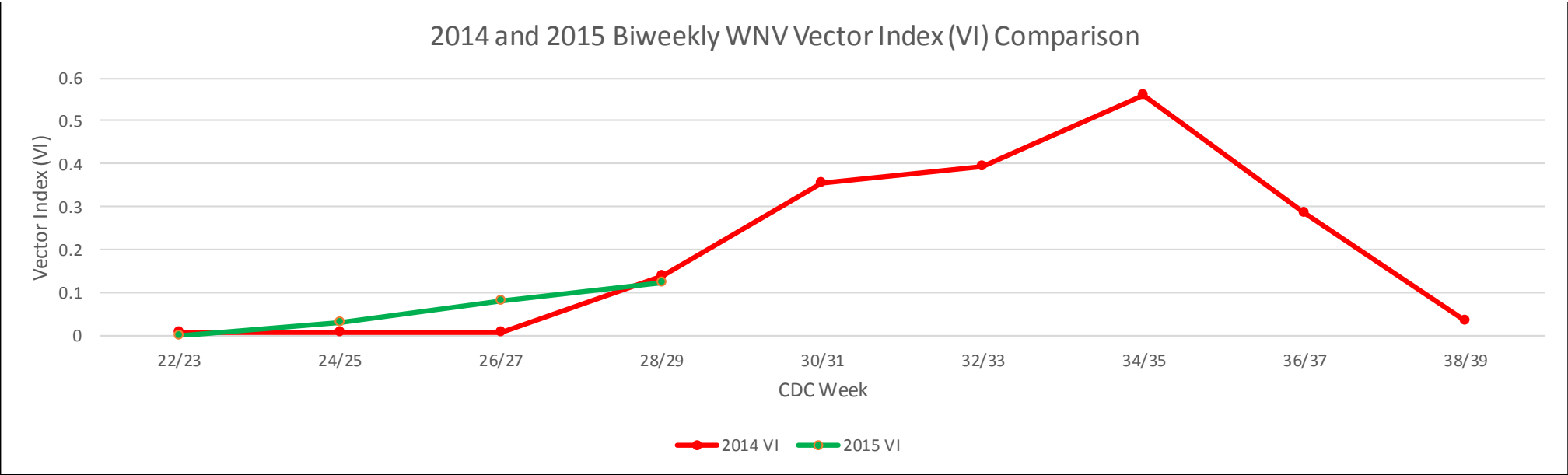


Comparison of 2014 Biweekly WNV Positive Pools to 2015 Season Data.

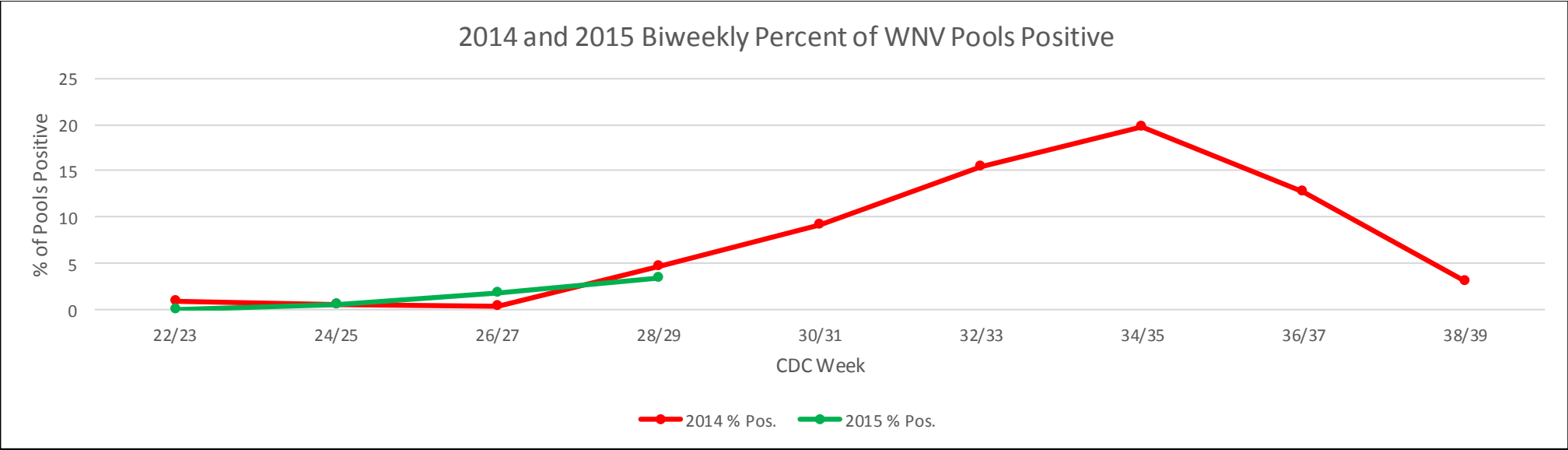
2014 and 2015 Biweekly WNV MIR Comparison



Comparison of 2014 Biweekly WNV MIR to 2015 Season Data.

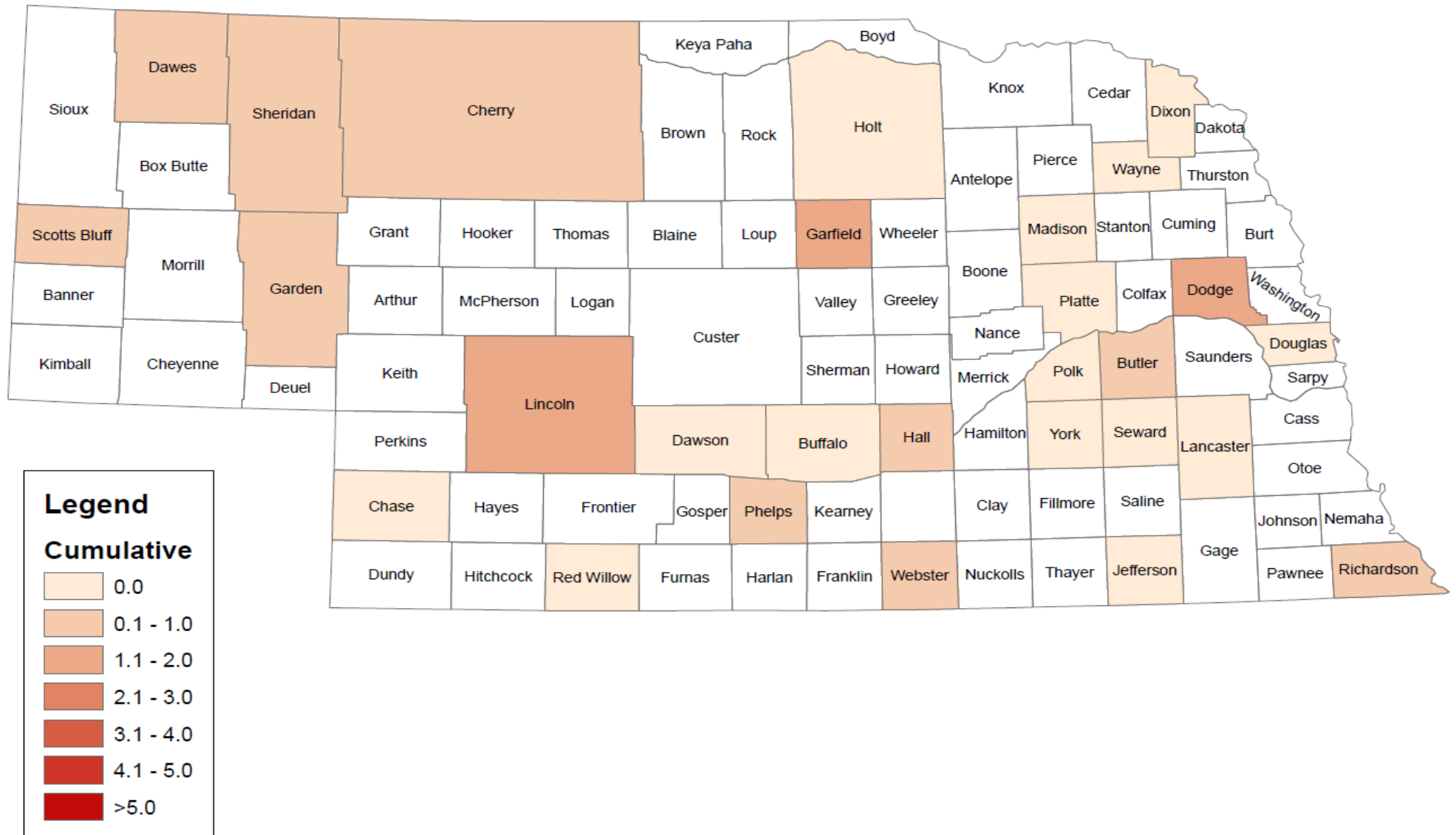


Comparison of 2014 Biweekly WNV Vector Index (VI) to 2015 Season Data.



Comparison of 2014 Biweekly Percent of WNV Pools Testing Positive to 2015 Season Data.

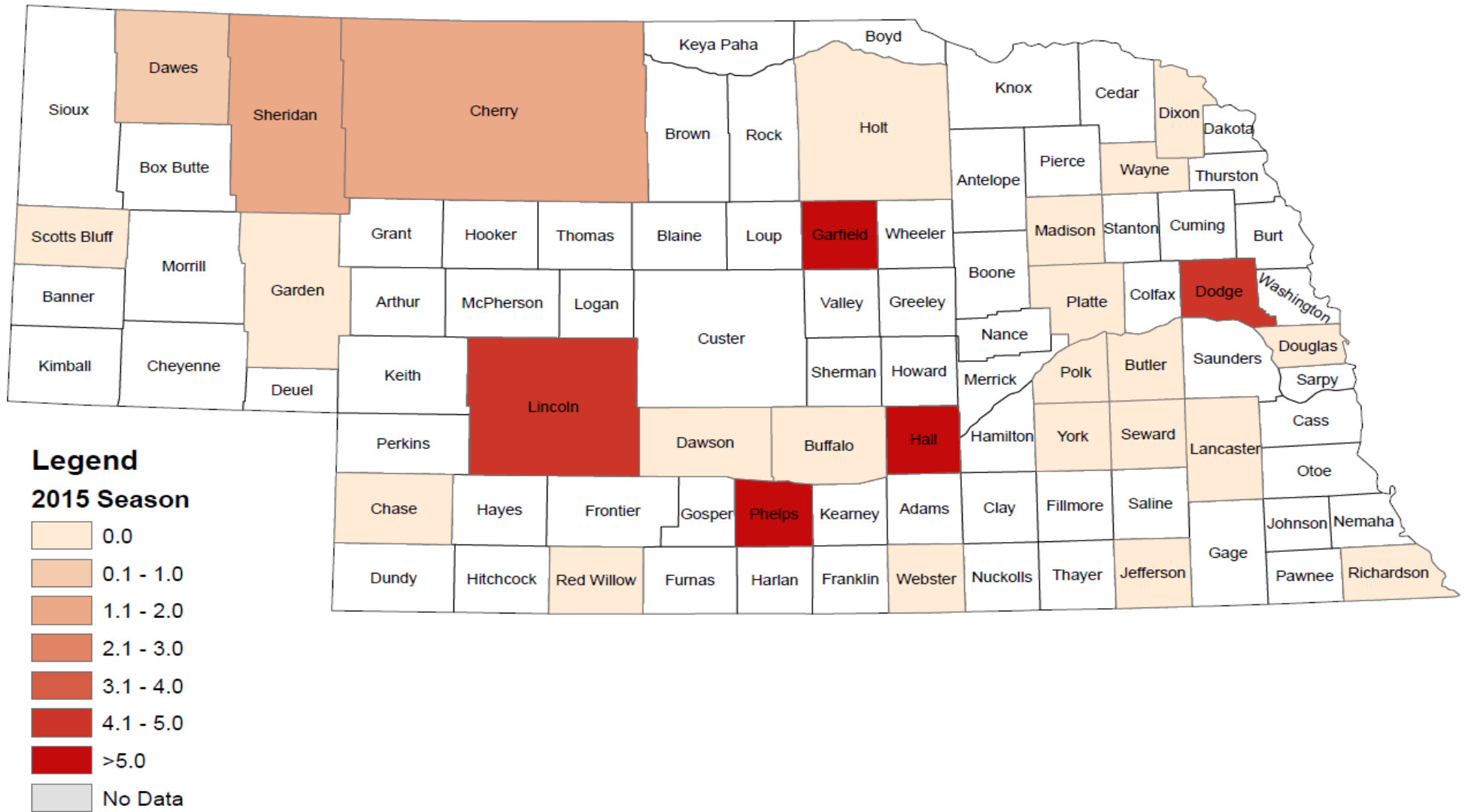
2015 Nebraska Cumulative Mosquito Minimum Infection Rates



2015 Cumulative Nebraska Mosquito Minimum Infection Rate (MIR) by County.

Note: 28 Counties are participating in the 2015 Nebraska WNV mosquito surveillance season.

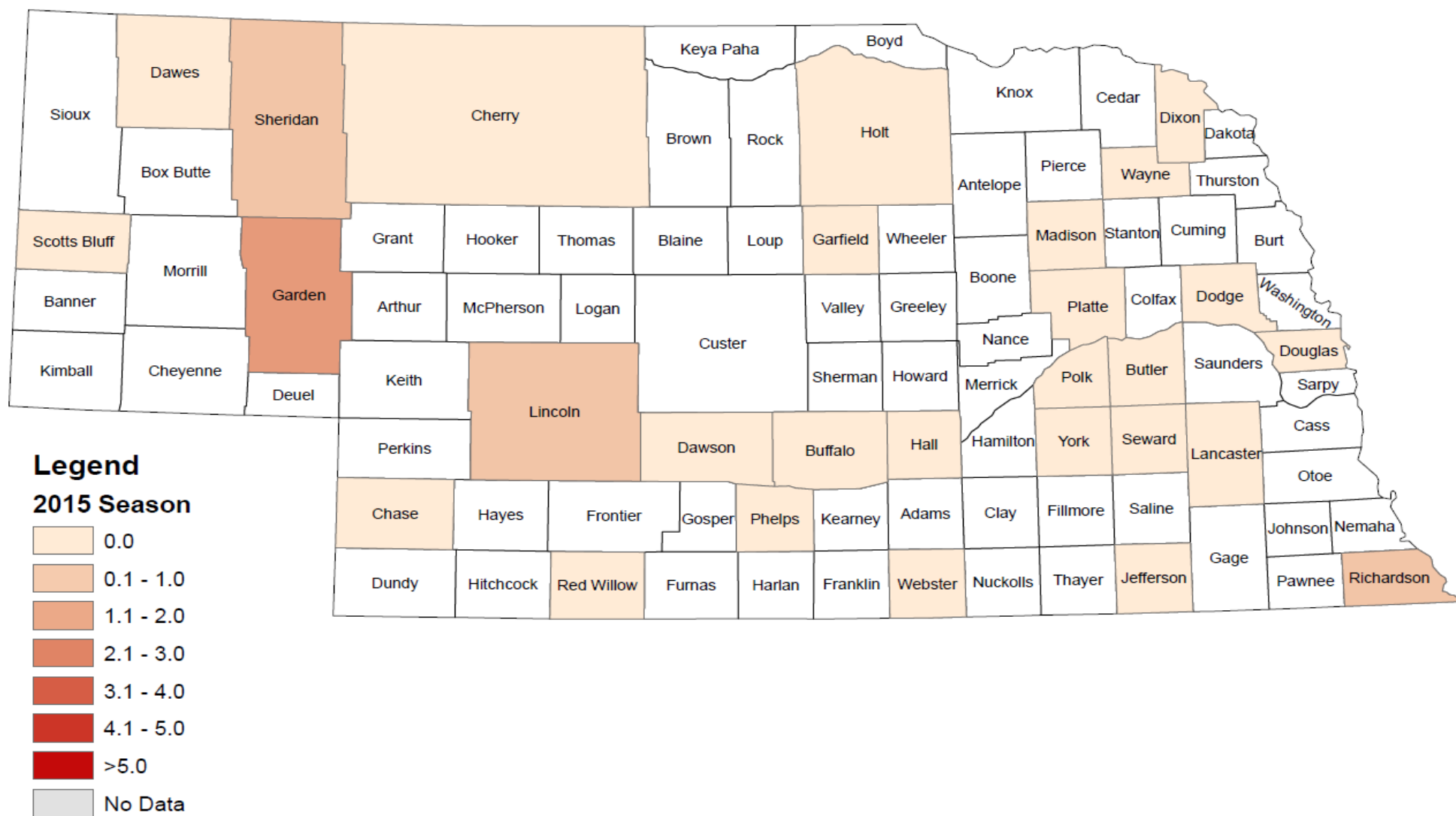
2015 Nebraska Bi-weekly Mosquito Minimum Infection Rates (CDC Weeks 28/29)



2015 Nebraska Biweekly Mosquito Minimum Infection Rates for CDC Weeks 28/29.

Note: 28 Counties are participating in the 2015 Nebraska WNV mosquito surveillance season.

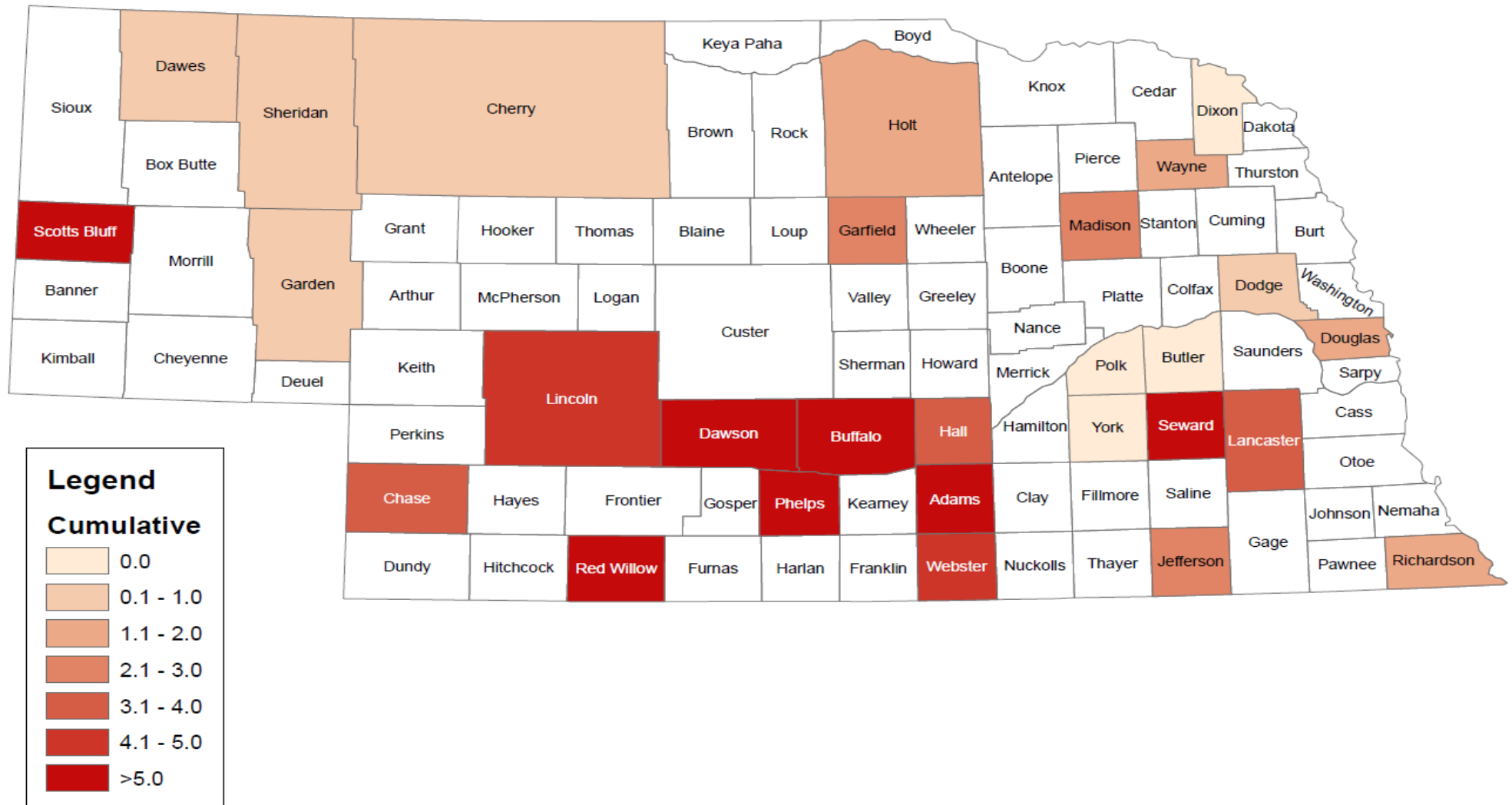
2015 Nebraska Bi-weekly Mosquito Minimum Infection Rates (CDC Weeks 26/27)



2015 Nebraska Biweekly Mosquito Minimum Infection Rates for CDC Weeks 26/27.

Note: 28 Counties are participating in the 2015 Nebraska WNV mosquito surveillance season.

2014 Cumulative Nebraska Mosquito Minimum Infection Rates



Last Season's (2014) Cumulative Nebraska Mosquito Minimum Infection Rate (MIR) by County.

Note: 28 Counties participated in the 2014 Nebraska WNV mosquito surveillance season.

ST. LOUIS ENCEPHALITIS VIRUS SURVEILLANCE

Biweekly Nebraska County SLE Mosquito Test Results Table CDC Weeks 28/29

County	Trap Week	SLE Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	Weekly VI	% Pos. Pools
Buffalo	28/29	0	6	6	4	4.8	0.0	0.000	0.0
Butler	28/29	0	2	2	1	3.0	0.0	0.000	0.0
Chase	28/29	0	5	5	5	30.4	0.0	0.000	0.0
Cherry	28/29	0	35	35	6	268.0	0.0	0.000	0.0
Dawes	28/29	0	99	99	6	779.0	0.0	0.000	0.0
Dawson	28/29	0	14	14	6	79.3	0.0	0.000	0.0
Dixon	28/29	0	5	5	3	6.7	0.0	0.000	0.0
Dodge	28/29	0	12	12	6	35.7	0.0	0.000	0.0
Douglas	28/29	0	5	5	5	8.6	0.0	0.000	0.0
Garden	28/29	0	35	35	6	248.7	0.0	0.000	0.0
Garfield	28/29	0	14	14	12	5.8	0.0	0.000	0.0
Hall	28/29	0	7	7	6	10.7	0.0	0.000	0.0
Holt	28/29	0	ND	ND	ND	ND	ND	ND	ND
Jefferson	28/29	0	13	13	6	19.3	0.0	0.000	0.0
Lancaster	28/29	0	8	8	6	17.8	0.0	0.000	0.0
Lincoln	28/29	0	18	18	6	103.2	0.0	0.000	0.0
Madison	28/29	0	11	11	6	29.5	0.0	0.000	0.0
Phelps	28/29	0	6	6	6	3.5	0.0	0.000	0.0
Platte	28/29	0	11	11	5	29.4	0.0	0.000	0.0
Polk	28/29	0	1	1	1	3.0	0.0	0.000	0.0
Red Willow	28/29	0	4	4	6	5.5	0.0	0.000	0.0
Richardson	28/29	0	24	24	6	120.3	0.0	0.000	0.0
Scottsbluff	28/29	0	52	52	6	413.8	0.0	0.000	0.0
Seward	28/29	0	2	2	1	4.0	0.0	0.000	0.0
Sheridan	28/29	0	83	83	6	466.7	0.0	0.000	0.0
Wayne	28/29	0	5	5	3	4.7	0.0	0.000	0.0
Webster	28/29	0	6	6	6	2.0	0.0	0.000	0.0
York	28/29	0	2	2	1	7.0	0.0	0.000	0.0
2015 Biweekly Total	28/29	0	485	485	137	126.6	0.0	0.000	0.0

Bold Face= Indicates pools remain to be tested from these counties. **ND=** No Data from current biweekly sampling period. Pools Submitted column is the number of pools submitted for testing from that county and the Pools Tested column is the current number of pools that have been tested of the pools submitted.

Cumulative 2015 Nebraska County SLE Mosquito Test Results

County	SLE Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	Weekly VI	% Pos. Pools
Buffalo	0	94	94	22	163.6	0.0	0.000	0.0
Butler	0	27	27	4	255.0	0.0	0.000	0.0
Chase	0	47	47	21	69.9	0.0	0.000	0.0
Cherry	0	147	147	24	274.5	0.0	0.000	0.0
Dawes	0	392	392	24	742.6	0.0	0.000	0.0
Dawson	0	52	52	24	70.3	0.0	0.000	0.0
Dixon	0	20	20	12	12.4	0.0	0.000	0.0
Dodge	0	41	41	24	29.2	0.0	0.000	0.0
Douglas	0	39	39	23	21.9	0.0	0.000	0.0
Garden	0	88	88	24	136.1	0.0	0.000	0.0
Garfield	0	48	48	30	30.6	0.0	0.000	0.0
Hall	0	59	59	23	69.1	0.0	0.000	0.0
Holt	0	70	70	18	152.1	0.0	0.000	0.0
Jefferson	0	64	64	24	53.9	0.0	0.000	0.0
Lancaster	0	80	80	24	105.4	0.0	0.000	0.0
Lincoln	0	83	83	24	135.0	0.0	0.000	0.0
Madison	0	39	39	24	30.6	0.0	0.000	0.0
Phelps	0	33	33	24	21.4	0.0	0.000	0.0
Platte	0	91	91	20	175.9	0.0	0.000	0.0
Polk	0	13	13	4	95.5	0.0	0.000	0.0
Red Willow	0	43	43	23	56.8	0.0	0.000	0.0
Richardson	0	88	88	24	109.0	0.0	0.000	0.0
Scottsbluff	0	200	200	24	376.1	0.0	0.000	0.0
Seward	0	13	13	4	83.3	0.0	0.000	0.0
Sheridan	0	240	240	24	466.7	0.0	0.000	0.0
Wayne	0	21	21	12	21.3	0.0	0.000	0.0
Webster	0	61	61	23	81.0	0.0	0.000	0.0
York	0	14	14	4	100.0	0.0	0.000	0.0
2015 Cumulative State Wide Total	0	2207	2207	555	146.4	0.0	0.000	0.00

WESTERN EQUINE ENCEPHALITIS VIRUS SURVEILLANCE

Biweekly Nebraska County WEE Mosquito Test Results Table CDC Weeks 28/29

County	Trap Week	WEE Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	Weekly VI	% Pos. Pools
Buffalo	28/29	0	6	6	4	4.8	0.0	0.000	0.0
Butler	28/29	0	2	2	1	3.0	0.0	0.000	0.0
Chase	28/29	0	5	5	5	30.4	0.0	0.000	0.0
Cherry	28/29	0	35	35	6	268.0	0.0	0.000	0.0
Dawes	28/29	0	99	99	6	779.0	0.0	0.000	0.0
Dawson	28/29	0	14	14	6	79.3	0.0	0.000	0.0
Dixon	28/29	0	5	5	3	6.7	0.0	0.000	0.0
Dodge	28/29	0	12	12	6	35.7	0.0	0.000	0.0
Douglas	28/29	0	5	5	5	8.6	0.0	0.000	0.0
Garden	28/29	0	35	35	6	248.7	0.0	0.000	0.0
Garfield	28/29	0	14	14	12	5.8	0.0	0.000	0.0
Hall	28/29	0	7	7	6	10.7	0.0	0.000	0.0
Holt	28/29	0	ND	ND	ND	ND	ND	ND	ND
Jefferson	28/29	0	13	13	6	19.3	0.0	0.000	0.0
Lancaster	28/29	0	8	8	6	17.8	0.0	0.000	0.0
Lincoln	28/29	0	18	18	6	103.2	0.0	0.000	0.0
Madison	28/29	0	11	11	6	29.5	0.0	0.000	0.0
Phelps	28/29	0	6	6	6	3.5	0.0	0.000	0.0
Platte	28/29	0	11	11	5	29.4	0.0	0.000	0.0
Polk	28/29	0	1	1	1	3.0	0.0	0.000	0.0
Red Willow	28/29	0	4	4	6	5.5	0.0	0.000	0.0
Richardson	28/29	0	24	24	6	120.3	0.0	0.000	0.0
Scottsbluff	28/29	0	52	52	6	413.8	0.0	0.000	0.0
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Sheridan	28/29	0	83	83	6	466.7	0.0	0.000	0.0
Wayne	28/29	0	5	5	3	4.7	0.0	0.000	0.0
Webster	28/29	0	6	6	6	2.0	0.0	0.000	0.0
York	28/29	0	2	2	1	7.0	0.0	0.000	0.0
2015 Biweekly Total	28/29	0	485	485	137	126.6	0.0	0.000	0.0

Bold Face= Indicates pools remain to be tested from these counties. **ND=** No Data from current biweekly sampling period. Pools Submitted column is the number of pools submitted for testing from that county and the Pools Tested column is the current number of pools that have been tested of the pools submitted.

Cumulative 2015 Nebraska County WEE Mosquito Test Results

County	WEE Positive Pools	Pools Submitted	Pools Tested	Trap Nights	Avg. Culex/Trap Night	Infection Rate/1000	Weekly VI	% Pos. Pools
Buffalo	0	94	94	22	163.6	0.0	0.000	0.0
Butler	0	27	27	4	255.0	0.0	0.000	0.0
Chase	0	47	47	21	69.9	0.0	0.000	0.0
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Dawes	0	392	392	24	742.6	0.0	0.000	0.0
Dawson	0	52	52	24	70.3	0.0	0.000	0.0
Dixon	0	20	20	12	12.4	0.0	0.000	0.0
Dodge	0	41	41	24	29.2	0.0	0.000	0.0
Douglas	0	39	39	23	21.9	0.0	0.000	0.0
Garden	0	88	88	24	136.1	0.0	0.000	0.0
Garfield	0	48	48	30	30.6	0.0	0.000	0.0
Hall	0	59	59	23	69.1	0.0	0.000	0.0
Holt	0	70	70	18	152.1	0.0	0.000	0.0
Jefferson	0	64	64	24	53.9	0.0	0.000	0.0
Lancaster	0	80	80	24	105.4	0.0	0.000	0.0
Lincoln	0	83	83	24	135.0	0.0	0.000	0.0
Madison	0	39	39	24	30.6	0.0	0.000	0.0
Phelps	0	33	33	24	21.4	0.0	0.000	0.0
Platte	0	91	91	20	175.9	0.0	0.000	0.0
Polk	0	13	13	4	95.5	0.0	0.000	0.0
Red Willow	0	43	43	23	56.8	0.0	0.000	0.0
Richardson	0	88	88	24	109.0	0.0	0.000	0.0
Scottsbluff	0	200	200	24	376.1	0.0	0.000	0.0
Seward	0	13	13	4	83.3	0.0	0.000	0.0
Sheridan	0	240	240	24	466.7	0.0	0.000	0.0
Wayne	0	21	21	12	21.3	0.0	0.000	0.0
Webster	0	61	61	23	81.0	0.0	0.000	0.0
York	0	14	14	4	100.0	0.0	0.000	0.0
2015 Cumulative State Wide Total	0	2207	2207	555	146.4	0.0	0.000	0.00